A UNIFIED MODEL OF RULE-SET LEARNING AND SELECTION

by

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A Dissertation

Submitted to the Faculty of Purdue University

In Partial Fulfillment of the Requirements for the degree of

Doctor of Philosophy

Department of Psychological Sciences

West Lafayette, Indiana

December 2018

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ABSTRACT

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Degree Received: December 2018
Title: A Unified Model of Rule-Set Learning and Selection
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The ability to focus on relevant information and ignore irrelevant information is a fundamental part of intelligent behavior. It not only allows faster acquisition of new tasks by reducing the size of the problem space but also allows for generalizations to novel stimuli. Task-switching, task-sets, and rule-set learning are all intertwined with this ability. Naturally there are many models that attempt to individually describe these cognitive abilities. However, there are few models that try to capture the breadth of these topics in a unified model and fewer still that do it while adhering to the biological constraints imposed by the findings from the field of neuroscience. Presented here is a comprehensive model of rule-set learning and selection that can capture the learning curve results, error-type data, and transfer effects found in rule-learning studies while also replicating the reaction-time data and various related effects of task-set and task-switching experiments. The model also factors in many disparate neurological findings, several of which are often disregarded by similar models